

WHAT IS CLAIMED IS:

1 An apparatus for combining symbols received from multi-paths in a CDMA communication system, comprising:

5 a plurality of fingers each for despreading a signal received in one path and extracting symbol data, and

a symbol combiner for combining symbol data except for symbol data whose signs are inverted due to fading among the symbol data received from the fingers.

10 2. The apparatus of claim 1, wherein the symbol combiner comprises:
an energy determiner for calculating the energy of symbol data received from the fingers and outputting symbol data with energy higher than a threshold;

an effective path selector for outputting only symbol data with a sign corresponding to the majority sign among the symbol data received from the energy determiner; and

a channel combiner for accumulating the symbol data received from the effective path selector and outputting the accumulated symbol data.

15 3. The apparatus of claim 1, wherein the symbol data is a 2's complement of n bits.

20 4. An apparatus for combining symbols received from multi-paths in a CDMA communication system, comprising:

25 a plurality of fingers each having at least a fading component generator for generating a fading component by extracting a pilot signal from a signal received from a path, a channel demodulator for extracting symbol data by despreading the input signal, and a fading compensator for multiplying the symbol data by the fading component for channel compensation;

an energy determiner for calculating the energy of symbol data received from the fingers and outputting symbol data with energy higher than a threshold;

an effective path selector for outputting only symbol data with a sign corresponding to the majority sign among the symbol data received from the energy determiner; and

a channel combiner for accumulating the symbol data received from the effective path selector and outputting the accumulated symbol data.

5. The apparatus of claim 4, wherein the symbol data is a 2's complement of n bits.

6. An apparatus for combining symbols received from multi-paths in a CDMA communication system, comprising:

a first energy determiner and a second energy determiner for calculating the energy of corresponding I and Q channel symbol data and outputting symbol data with energy higher than a threshold;

a first effective path selector and a second effective path selector for outputting only symbol data with a sign corresponding to the majority sign among the symbol data received from the first and second energy determiners;

an I channel combiner and a Q channel combiner for accumulating the symbol data received from the first and second effective path selectors, respectively, and outputting the accumulated symbol data;

a switch for multiplexing the symbol data received from the I and Q channel combiners; and

a de-randomizer for XOR-gating the symbol data received from the switch and a predetermined long code and outputting the de-randomized symbol data.

7. A method for combining symbols received via multiple paths in a CDMA

communication system, comprising the steps of:

receiving symbol data from a plurality of fingers;
calculating the energy of each received symbol data and comparing the energy
with a threshold;

5 extracting symbol data with energy higher than the threshold as symbol data to
be combined;

selecting symbol data having a sign corresponding to the majority sign by
checking the signs of the extracted symbol data; and
combining the selected symbol data in symbol units through accumulation.

10 8. A method for combining symbols received via multiple paths in a
CDMA communication system, comprising the steps of:

receiving symbol data from a plurality of fingers by an energy determiner;
calculating the energy of each received symbol data and comparing the energy
with a threshold by the energy determiner;

15 outputting symbol data with energy higher than the threshold to an effective path
selector and setting symbol data with energy less than the threshold to 0s by the energy
determiner;

20 checking the signs of the symbol data received from the energy determiner by the
effective path selector;

setting symbol data with a sign different from the majority sign of the other
symbol data to 0s and outputting the other majority data to a channel combiner by the
effective path selector; and

25 combining the symbol data received from the effective path selector in symbol
units through accumulation by the channel combiner.